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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Operational Test and Evaluation, Defense **Date:** February 2018

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
0460: Operational Test and Evaluation, Defense / BA 6: RDT&E Management Support					PE 0605814OTE / Operational Test Activities and Analyses							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	63.763	59.566	67.897	70.992	-	70.992	59.650	59.748	61.443	54.121	Continuing	Continuing
000920: OTA&A	63.763	59.566	67.897	70.992	-	70.992	59.650	59.748	61.443	54.121	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Operational Test Activities and Analyses (OTA&A) programs are continuing efforts that provide management and oversight of test and evaluation functions and expertise to the Department of Defense (DoD). The OTA&A programs consist of three activities: Joint Test and Evaluation (JT&E); Threat Systems (TS); and Center for Countermeasures (CCM).

Joint Test and Evaluation projects are test and evaluation activities conducted in a joint military environment that develop process improvements. These multi-Service projects, chartered by the Office of the Secretary of Defense and coordinated with the Joint Staff, appropriate combatant commanders, and the Services, provide non-materiel solutions that improve: joint interoperability of Service systems, technical and operational concepts, joint operational issues, development and validation of joint test methodologies, and test data for validating models, simulations, and test beds. The JT&E projects address relevant joint war fighting issues in a joint test and evaluation environment by developing and providing new tactics, techniques, and procedures to improve joint capabilities and methodologies.

Threat Systems, based on a memorandum of agreement between the Director, Operational Test and Evaluation (DOT&E) and the Defense Intelligence Agency, provides DOT&E support in the areas of threat resource analysis, intelligence support and threat systems investments. Threat Systems provides threat resource analyses on the availability, capabilities and limitations of threat representations (threat simulators, targets, models, U.S. surrogates and foreign materiel) and analysis of test resources used for operational testing to support DOT&E's assessment of the adequacy of testing for those programs designated for oversight by DOT&E and the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics. Threat Systems provides DOT&E assessment officers and other DOT&E activities with program specific threat intelligence support. Threat Systems also funds management, oversight, and development of common-use threat specifications for threat simulators, threat representative targets, and digital threat models used for test and evaluation.

The Center, a Joint Service Countermeasure (CM) T&E Activity, directs, coordinates, supports, and conducts independent countermeasure/counter-countermeasure (CCM) T&E activities of U.S. and foreign weapon systems, subsystems, sensors, and related components. The Center accomplishes this work in support of DOT&E, Deputy Assistant Secretary of Defense (DASD) for Developmental Test and Evaluation (DT&E), weapon system developers, and the Services. The Center's testing and analyses directly supports operational effectiveness and suitability evaluations of CM/CCM systems, such as missile warning and aircraft survivability equipment (ASE), used on rotary-wing and fixed-wing aircraft. The Center develops unique CM/CCM test equipment to support testing in operationally realistic environments. The Center determines effectiveness of precision guided weapon (PGW) systems and subsystems when operating in an environment degraded by CMs. Analysis and recommendations on CM/CCM effectiveness are provided to Service Program Offices, DOT&E, DASD (DT&E), and the Services. The Center also supports Service member exercises, training, and pre-deployment activities with expertise on CM/CCM technology and capabilities.

This Program Element includes funds to obtain Federally Funded Research and Development support and travel funds.

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Appropriation/Budget Activity 0460: <i>Operational Test and Evaluation, Defense I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605814OTE I <i>Operational Test Activities and Analyses</i>
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B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	52.631	67.897	63.641	-	63.641
Current President's Budget	59.566	67.897	70.992	-	70.992
Total Adjustments	6.935	0.000	7.351	-	7.351
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-1.065	-			
• Congressional Rescissions	-	-			
• Congressional Adds	8.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Joint Standard Instrumentation Suite (JSIS)	-	-	7.351	-	7.351
Full Operational Capability					

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 000920: *OTA&A*

Congressional Add: *Threat Resource Analysis*

Congressional Add Subtotals for Project: 000920

Congressional Add Totals for all Projects

FY 2017	FY 2018
8.000	-
8.000	-
8.000	-

Change Summary Explanation

FY 2017 reduction of \$1.065 was congressional directed FFRDC reduction.

FY 2017 Congressional Add was for, "Program increase - threat resource analysis".

FY 2019 change for Joint Standard Instrumentation Suite (JSIS) Full Operational Capability provides threat measurement capabilities necessary for test and evaluation modelling and simulation. This enhancement provides an integrated suite of radiometric instruments along with related equipment to measure and record threat munitions signatures, Time Space Position Information (TSPI), and other ground truth data.

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Appropriation/Budget Activity 0460 / 6					R-1 Program Element (Number/Name) PE 0605814OTE / <i>Operational Test Activities and Analyses</i>				Project (Number/Name) 000920 / OTA&A			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
000920: OTA&A	63.763	59.566	67.897	70.992	-	70.992	59.650	59.748	61.443	54.121	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Operational Test Activities and Analyses (OTA&A) programs are continuing efforts that provide management and oversight of test and evaluation functions and expertise to the Department of Defense (DoD). The OTA&A programs consist of three activities: Joint Test and Evaluation (JT&E); Threat Systems (TS); and, the Center for Countermeasures (CCM).												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2017	FY 2018	FY 2019	
Title: Operational Test Activities and Analyses									51.566	67.897	70.992	
FY 2018 Plans: Joint Test and Evaluation (JT&E)												
In FY 2018, JT&E plans to close one project that was started in FY 2016. The Digitally Aided Close Air Support Joint Test is anticipated to close in May 2018. It is developing and testing procedures so Joint Terminal Attack Controllers, Joint Fires Observers, and Close Air Support aircrew can realize the advantage of digital communications, including shared situational awareness, increased confidence prior to weapons release, and improved kill chain timeliness. Two projects that started in FY 2017 will continue through FY 2018. Four new feasibility studies are expected to be conducted in FY 2018 of which two will be selected to conduct joint tests.												
Threat Systems												
FY 2018, Threat Systems will continue test planning working group participation and perform technical analyses to identify threat shortfalls; conduct special studies and provide current intelligence support tailored to specific U.S. weapon systems acquisitions based on the availability of funding. Threat Systems will: - Provide intelligence support to DOT&E staff to address specific questions on threat systems affecting programs on the OSD T&E Oversight list and provide briefings and special intelligence reports when necessary. - Provide DOT&E representative support at the Threat Steering Group (TSG) in the transitioning of the System Threat Assessment Reports (STARS) to the new Validated Online Lifecycle Threat (VOLT) report process. - Continue to represent DOT&E interests on Acquisition/Intelligence/ Requirement Task Force (AIRTF) and Executive Steering Group (AIRESG) and provide access to the Intelligence Mission Data Management Analysis & Reporting System (IMARS).												

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
<ul style="list-style-type: none"> - Support the US warfighter by providing threat intelligence to ensure operational and developmental testing occurs against realistic threat representations. - Sustain and manage threat M&S to support test and evaluation by overseeing and coordinating intelligence community developed threat models, performing threat model anomaly resolution resolving differences from live fire testing, integrating threat models into T&E facilities and distributing performance and signature models to T&E users. - Review validation reports to independently ensure that correct threat data and critical parameters are presented in the report to assessment the threat representation's capabilities to replicate a real world threat system. - Continue identifying initiatives to improve cyberspace threat representation and prediction, cyber-economic threats to DoD systems, representative threat offensive and defensive cyber operations capabilities, and scalable cyberspace threat test environments that can interface with cyber test networks. - Manage Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) efforts supporting programs on the OSD T&E Oversight List by conducting intelligence "deep dives" to produce intelligence in sufficient detail to develop new threat test assets. - Initiate new ITEAMS efforts leading to the development of new threat systems for T&E. - Represent DOT&E at foreign material exchanges, inter-agency coordinating groups, and non-proliferation groups to raise awareness of T&E needs for foreign material, coordinate service requirements, and de-conflict and prioritize foreign material requirements for T&E. - Represent DOT&E at the Intelligence Mission Data Oversight Board responsible for development, production and sharing issues affecting the intelligence data supporting weapons systems acquisition. - Oversee legacy DOT&E investments and continue management and oversight of legacy and new Test Resource Management Center-funded threat system investments. <p>Threat Systems continues its efforts to maintain a standard set of threat performance models. These activities help DOT&E carry out its Title 10 responsibilities to assess test adequacy and determine whether testing is realistic and suitable, and promotes common solutions to Service threat representation needs.</p> <p>The Center</p> <p>The Center has received 46 requests for support during FY18, which exceeds our support capacity. The Center will assess the requests based on priority and schedule. The Center will test, analyze, and report on more than 30 systems/platforms, with emphasis on rotary wing survivability. High priority test events will receive an independent assessment of our data/findings for CM/CCM evaluations. The Center will continue to emphasize support of the DOT&E enterprise, with a clear focus on Title 10 weapons systems, aircraft survivability and hostile fire initiatives.</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
<p>The Center will continue to conduct ongoing investigations towards determining and filling the gaps in EW and multimode system testing. In addition to these test activities, the Center will continue to provide CM expertise in pre-deployment events and training, as well as CM/CCM-focused tactics, techniques and procedures (TTP) development. Our support will be distributed across all the Services, as well as intelligence agencies and research and development activities.</p> <p>The Center will complete the initial development of the RLS turret upgrade, which will be used in support of testing for both Title 10 programs and ASE urgent operational needs. The Center will continue to improve and expand the JSIS to meet program data collection requirements. Also, emitter upgrades are planned for the missile plume simulators to better replicate threat missile launches. The Center will provide expertise to many organizations including program offices and other T&E agencies. The Center will continue to be actively involved in the following panels: JECM Integrated Product Team, Joint Infrared Countermeasures Multi Sensing Symposia Working Group (MSS IRCM WG), JASP, Foreign Material Exploitation Working Group, Foreign Material Program T&E Subcommittee, JCMT&E WG, and JCMT&E WG HFI subgroup lead.</p> <p>FY 2019 Plans: Joint Test and Evaluation (JT&E)</p> <p>In FY 2019, JT&E plans to close one project that was started in FY 2016 and two projects that were started in FY 2017. The first is the Joint Counterair Integration Joint Test, which is anticipated to close in November 2018. It is developing and testing TTP for counterair shooter and C2 operators to effectively integrate joint defensive counterair resources in a contested, degraded, and operationally limited environment to protect defended assets from expected threats. The other project expected to close in FY 2019 is the Joint Cyber Insider Threat Joint Test, which is anticipated to close in November 2018. It is developing and testing procedures to proactively detect and respond to cyber insider threats before they have an adverse impact on military operations. Two projects that will start in FY 2018 will continue through FY 2019. Four new feasibility studies are expected to be conducted in FY 2019 of which two will be selected to conduct joint tests.</p> <p>Threat Systems</p> <p>In FY 2019, Threat Systems will continue test planning working group participation and perform technical analyses to identify threat shortfalls; conduct special studies and provide current intelligence support tailored to specific U.S. weapon systems acquisitions based on the availability of funding. Threat Systems will:</p> <ul style="list-style-type: none"> - Continue to provide intelligence support to DOT&E staff to address specific questions on threat systems affecting programs on the OSD T&E Oversight list and provide briefings and special intelligence reports when necessary. - Continue providing DOT&E representative support at the Threat Steering Group (TSG) in the transitioning of the System Threat Assessment Reports (STARS) to the new Validated Online Lifecycle Threat (VOLT) Report process. 			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
<ul style="list-style-type: none"> - Continue to represent DOT&E interests on Acquisition/Intelligence/ Requirement Task Force (AIRTF) and Executive Steering Group (AIRESG) and provide access to the Intelligence Mission Data Management Analysis & Reporting System (IMARS). - Continue identifying initiatives to improve cyberspace threat representation and prediction, cyber-economic threats to DoD systems, and scalable cyberspace threat test environments that can interface with cyber test networks. - Continue identifying initiatives to conduct offensive cyber operations (OCO) and defensive cyber operations (DCO) without significantly impacting critical operational capabilities. - Continue initiatives to improve satellite and space threat representations. - Support the US warfighter by providing threat intelligence to ensure operational and developmental testing occurs against realistic threat representations. - Sustain and manage threat M&S to support test and evaluation by overseeing and coordinating intelligence community developed threat models, performing threat model anomaly resolution resolving differences from live fire testing, integrating threat models into T&E facilities and distributing performance and signature models to T&E users. - Manage Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) efforts supporting programs on the OSD Oversight T&E List by conducting intelligence “deep dives” to produce intelligence in sufficient detail to develop new threat test assets. - Represent DOT&E at foreign material exchanges, inter-agency coordinating groups, and non-proliferation groups to raise awareness of T&E needs for foreign material, coordinate service requirements, and de-conflict and prioritize foreign material requirements for T&E. - Review validation reports to independently ensure that correct threat data and critical parameters are presented in the report to assessment the threat representation’s capabilities to replicate a real world threat system. - Represent DOT&E at the Intelligence Mission Data Oversight Board responsible for development, production and sharing issues affecting the intelligence data supporting weapons systems acquisition. - Oversee legacy DOT&E investments and continue management and oversight of legacy and new Test Resource Management Center-funded threat system investments. - Continue ITEAMS efforts leading to the development of new threat systems for T&E. <p>Threat Systems will continue its efforts to maintain a standard set of threat performance models. These activities help DOT&E carry out its Title 10 responsibilities to assess test adequacy and determine whether testing is realistic and suitable, and promotes common solutions to Service threat representation needs.</p> <p>The Center</p> <p>The Center will test, analyze, and report on more than 30 systems/platforms, with special emphasis on aircraft survivability, CM/CCM employment, warning and targeting systems, and PGWs. High priority programs will receive an independent assessment</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
<p>of our data/findings for CM/ CCM evaluations. The Center will continue to emphasize support of the DOT&E enterprise, with a clear focus on Title 10 weapons systems, aircraft survivability and hostile fire initiatives. Furthermore, the Center will continue to provide CM expertise in pre-deployment events and training, as well as CM/CCM-focused TTP development. Our support will be distributed across all the Services, as well as intelligence agencies and research and development activities.</p> <p>The Center will continue Improvement and Modernization (I&M) efforts to improve T&E capabilities. The Center plans to continue upgrades to the JSIS system and missile plume simulator emitters.</p> <p>The Center will provide expertise to many organizations including program offices and other T&E agencies. The Center will continue to be actively involved in the following panels: JECM Integrated Product Team, Joint Infrared Countermeasures Multi Sensing Symposia Working Group (MSS IRCM WG), JASP, Foreign Material Exploitation Working Group, Foreign Material Program T&E Subcommittee, JCMT&E WG, and JCMT&E WG HFI subgroup lead.</p> <p><i>FY 2018 to FY 2019 Increase/Decrease Statement:</i> The increase from FY 2018 to FY 2019 of \$3.095 Million is consistent with planned program increases in Joint Standard Instrumentation Suite (JSIS), Full Operational Capability (FOC), a program that provides threat measurement capabilities necessary for test and evaluation modelling and simulation; as well as planned program decreases in Fifth Generation Aerial Targets.</p>			
Accomplishments/Planned Programs Subtotals		51.566	67.897
		FY 2017	FY 2018
<p><i>Congressional Add:</i> Threat Resource Analysis</p> <p><i>FY 2017 Accomplishments:</i> - Developed and demonstrated a prototype system to support threat EW-enabled cyber operations for T&E for lab/anechoic chamber use by collecting classified and open-source data on C/EW threats, analyzed DoD and Service requirements for C/EW testing, and acquired U.S. targeted systems for lab test articles (ARC-231).</p> <ul style="list-style-type: none"> - Developed a Cyber Cloud that addresses many of the pitfalls Intelligence Analysts face today. - Identified the lack of a clearly defined cyber threat folder development processes to address the lack of a standardized folder structure across the Cyber community and the absence of a centralized storage location for threat folders. - Expanded our understanding of “wireless” cyber threats, which includes wireless cyber threats to support US weapon system testing. 		8.000	-

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	FY 2017	FY 2018
<ul style="list-style-type: none"> - Utilized investments on U.S. weapon systems that blend cyber and EW capabilities comparable to threat T&E assets. - Supported DT/OT programs with documented Cyber Electronic Warfare threat shortfalls such as Tactical Communications, Datalinks, Radio Communications, Networking, Data transportation and C4ISR Sensors and Systems. - Initiated actions to embrace the growing and evolving DOT&E Cyber Threat requirements and analyzing the convergence of Cyber and Electronic Warfare effecting the baseline required for Operational Test. - Continued to identify initiatives to improve cyberspace threat representation and prediction, cyber-economic threats to DoD systems, representative threat offensive and defensive cyber operations capabilities, and scalable cyberspace threat test environments that can interface with cyber test networks. <p>Threat Systems also continued efforts to maintain a standard set of threat performance models. These activities helped DOT&E carry out its Title 10 responsibilities to assess test adequacy and determine whether testing is realistic and suitable, and promotes common solutions to Service threat representation needs.</p>		
Congressional Adds Subtotals	8.000	-

C. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

D. Acquisition Strategy
N/A

E. Performance Metrics
Performance Measure: Percentage of required products, such as test planning documents, tactics, techniques, procedures, threat characteristics, assessments, and reports that are developed and delivered to program managers and customers on time. The on-time completion rate was computed on the basis of the number of required products that were submitted within established time standards relative to the total number of such products that fell due during the fiscal year.